

## **Abstract:**

### **Background:**

Protein Calorie Malnourishment is very common in Cirrhosis and is known to be associated with increased risk of mortality and morbidity.

Simple bedside parameters to identify malnutrition is essential to diagnose and manage the nutritional deficit early to improve the prognosis and quality of life of cirrhotics.

### **Aim of The Study:**

To assess the nutritional status in cirrhosis patients by anthropometry, muscle strength assessment, BIA and subjective global assessment and to compare the severity of malnourishment with the severity of liver disease and risk of developing complications.

### **Material and Methods:**

This is a Prospective, observational study, conducted in Government Peripheral Hospital, Anna nagar, Chennai during the period of November 2013 to February 2015. All adult cirrhosis patients more than 18 years of age not in Hepatic Encephalopathy of stage 2 or more of West Haven Criteria are included in the study. Nutritional status indices like Subjective Global Assessment questionnaire (SGA), Mid arm Circumference, Triceps skin fold thickness (TSFT), Mid arm muscle circumference (MAMC), Hand grip strength(Kg/F) using were measured. Bio Impedance Analyser was used to measure Body Fat and skeletal muscle in percentages. Descriptive statistics analysed using SPSS version 22.

### **Results:**

87 patients were included in the eligible study population. 90.8% of them were males. Alcohol was aetiology of cirrhosis in 72.4%. CTP A, B and C consisted of 18, 27 and 42 patients respectively. BMI was not significantly different between those groups. Prevalence of malnourishment as per Subjective Global Assessment Score (SGA) score was 78.16% (n= SGA A 19, SGA B 49, SGA C 19). Malnourishment was significantly high in CTP B and C. In male patients in SGA A, B and C mean values for TSFT were 12.37, 9.13, 6.57 mm in respectively (p=0.0001, AUROC 0.843), MAC were 28, 23.8, 21.13 cm respectively (p=0.0001, AUROC 0.878), MAMC were 24.19, 20.51 and 19.06 cm respectively (p=0.0001, AUROC 0.841), Hand Grip Strength were 31.87, 22.59 and 17.6% respectively (p=0.0001, AUROC 0.892). Prevalence of SBP was 37.93% and of HE was 25.2%, and both the complication were high with malnourished patients (p=0.0001). Bio impedance analyser values showed no significant difference with malnourishment.

### **Conclusion:**

Subjective Global Assessment Score is useful in categorising nourishment status with severity of cirrhosis. TSFT, MAMC and Hand Grip Strength are useful parameters in diagnosing malnourishment. Malnourishment is a risk factor for developing SBP and Hepatic Encephalopathy.

**Keywords:**

Cirrhosis, Alcohol, Malnourishment, Subjective Global Assessment Score, Child Turcotte Pugh Score, Anthropometry, Albumin, BodyMass Index, Triceps Skin Fold Thickness, Mid Arm Muscle Circumference, Hand Grip Dynamometry, Bio Impedance Analyses, Complications, Spontaneous Bacterial Peritonitis, Hepatic Encephalopathy, Medical Nutritional Therapy

**Abbreviation used:**

CTP: Child Turcotte Pugh  
SGA: Subjective Global Assessment  
BMI: Body Mass Index  
TSFT: Triceps Skin Fold Thickness  
MAC: Mid Arm Circumference  
MAMC: Mid Arm Muscle Circumference  
HGS: Hand Grip Strength  
HE: Hepatic Encephalopathy  
SBP: Spontaneous Bacterial Peritonitis  
ROC: Receiver Operator Characteristic  
SE: Standard Error of Mean  
CLD: Chronic Liver Disease